EMERGING DOUBLE REPEATED MODEL FOR LANGUAGE LEARNING MOBILE APPS

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ABSTRACT

Nowadays technology development is so fast. Among this development, mobile usage, especially number of smart mobile users is rapidly increasing. So more and more researchers study focus on learning users' tendency of mobile phone and mobile app usage. As a result, every year many education-related, especially language learning mobile apps are born. This study is firstly aimed to learn a Chinese language foreigners' mobile apps usage situation, second to analyze popular mobile app types in Chinese language learning, and third tried to suggest emerging language learning app model to double repeated model.

KEYWORDS

Mobile App, Language Learning, Double Repeated Model, Design, Content

1. INTRODUCTION

1.1 Language Learning Mobile Apps

Today, learning foreign languages is one of the main interests and needs of students. It is on one hand because there are plenty of self-study and online study opportunity whenever and wherever, even free of charge. Information technology development already made it possible. Therefore more and more researchers are focusing on making and creating lots of learning mobile APPs. Then plenty of them are language learning apps. For example, among the 2674 publications in the selected journals between 2008 and 2012, 214 of total are related to the usage of mobile technologies in educational field. It was found that the top four applications are for language learning (37/214) (Gwo-Jen Hwang, Po-Han Wu, 2014). Another example is a self-directed language learning program, Duolingo that is used by more than 120 million people around the world, for learning 28 different languages (www.duolingo.com, 2017). 95,5k of its users are learning Chinese. Mobile apps and broad usage in language learning led to the development of the theory of learning foreign languages using mobile technology. For example, the second language acquisition SLA, Mobile Assisted Language Learning (MALL) using mobile phones to learn theory.

1.2 Space Repeated Language Learning

While experimenting with this method since 1932, Professor Mace came to the conclusion that it is simple, but effective technique to memorize new language patterns. Now most of self-study paid apps used a space repeated model.

Spaced repetition is a learning technique that incorporates increasing intervals of time between subsequent reviews of previously learned material in order to exploit the psychological spacing effect. Alternative names include spaced rehearsal, expanding rehearsal, graduated intervals, repetition spacing, repetition scheduling, spaced retrieval and expanded retrieval (Alan D. Baddeley, 1997). If there is no duplication: After one year 33% of the learned knowledge will be forgotten. Two years later 50% will be forgotten etc…

So experts say that up to 90% of today's applications are based on repetitions submitted in this or any other situation (Cull, W. L, 2000).

1.3 Purposes of This Study

This study focused on learning foreigners' usage of mobile apps in China and those apps' design and types, their current situation and found answers to following questions:

- What types of apps are used by Chinese foreign students for learning language?
- What are the designs of those apps used by Chinese foreign students?
- What are problems that encounter self-study of Chinese foreigners?
- What types and designs of apps are needed for language learning foreigners in China?

Finally, it is aimed to give a suggestion of emerging model self-study language learning app design through this research.

2. METHOD

2.1 Participants, Design and Implementation

Study 1, this study used questionnaire survey. The survey covered 96 international students from 13 countries around the world. All the participants are students of different universities of China. 34 of them are male, 62 are female.

Study 2, this study used an exploratory-qualitative-interpretive approach. I chose 40 of Chinese language learning apps, and some of them are dictionary (learning support tool), some are self-learning Chinese, some are quiz apps, etc. 20 of them are paid apps, 20 are not paid app. 29 are Android, 16 are IOS and 5 are possible on double platform.

2.2 Platforms and Instruments

Study 1 survey has 12 sub questions and developed on www.wjx.cn, involved students used Wechat. This sub 12 questions first five is general information, next seven is about app's question.

Study 2, for now, haven't examined those mobile apps' standards and contents, design checker. So I prepared this requirements based on (Catherine R. H,…, 2016) read paper's research used examiner and student requirement and add own design requirement. Next I examined this apps' designs and types.

Table 1. Examine Requirement and Apps' Score (Total 40 Apps, Some App is not Included this table)

Requirements			Duoling	Rosetta	Memris	Penyop	Mindsna	LingoAl	Innovat	Busuu	Hello	LearnP	Hanping	Chinese Pinyin	Chart	Memori ze	Phraseb ook	Learn&	PlayLan Learn	Chinese	Langua geLearn	MangoL anguage	Learn Ja panese/	Learn Chinese
Content	Type	Video	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	
		Picture	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0		
		Text	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1		
		Systematic content	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		Culture content	1	1	1	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0		
		Vocabulary	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1		
		Pronuncation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		Grammar content	1	1	1	0	1	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0		
		Assessment	1	1	1	1	1	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0		
	Output	Alert	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		Listen audio	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		Read content	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1		
		Feedback(output)	1	1	1	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0		
		Study skill results	1	1	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0		
	Input	Possible insert word	1	1	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1		
		Possible insert voice	1	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0		
		Possible examine user speak voice	1	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0		
		Possible examine student writing hand	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0		
Design		Line						1	1	1		1	1	1		1	1		1	1	1	1		
		Branched																1						
		Repeated	1	1	1	1	1				1				1									
		Double repeated																						
Type		Dictionary											1											
		Flash cards																						
		Writing characters																						1
		self-study app	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1			
		Pinyin app																						
User		Android	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		IOS	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	0		
		offline use	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0		
		Free	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		Total	23	22	20	13	18	11	14	17	22	12	16	8	15	12	12	10	13	11	11	11		

2.3 Results

Study 1 role is know, now learn Chinese foreigner used in app's situation. I take this survey after process and based on this survey result did study two. Some important outcomes of the study one are described here. For example: 85.4% of participants answered that they involved in face to face language learning, 8.3% of them learning online, and 29.1% of them are using Chinese language self-study mobile apps. Most of participants are involved in face to face language learning. For those students, they think most useful app is dictionary apps (see chart 1).

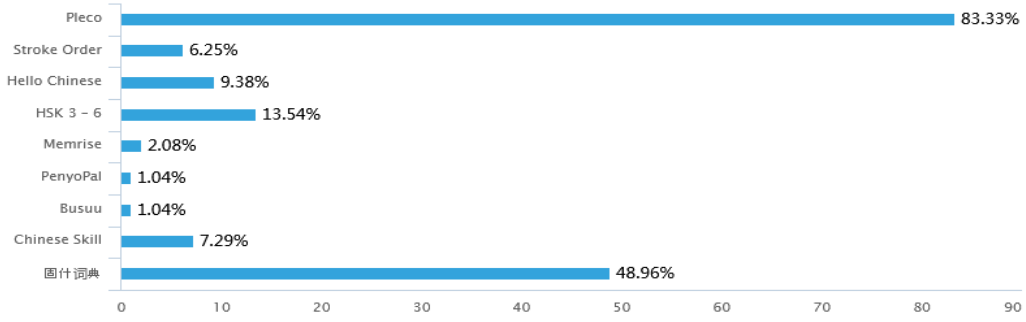

Chart 1. Participants Answer to Chinese Most Useful Language Learning Mobile Apps

Consider the chart 2, "Which of the Chinese language learning mobile apps help you most?" Answers have multiple choices, and 72.9% of the participants answer they use vocabulary learning apps. Because most of participants are involved in face to face learning, more useful apps are dictionary apps. So answers are as following result:

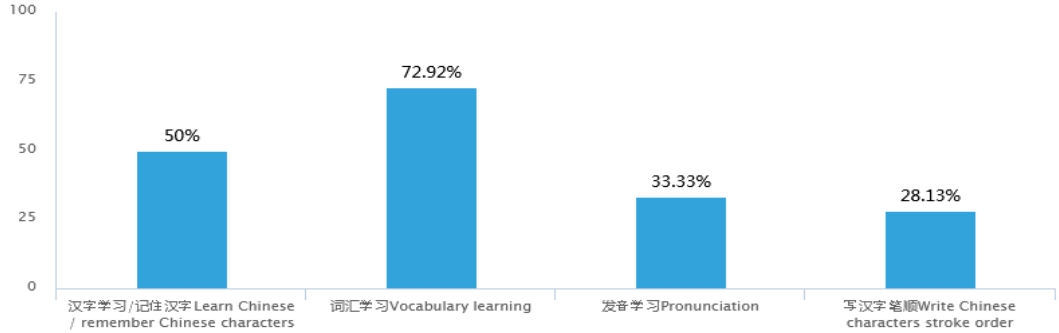

Chart 2. Language Learning Apps' Usage

Now let's discuss result of study 2. This study examined content, types of apps that foreigners in China use for language learning. Commonly used mobile apps can be divided into 5 types: Dictionary, Flash cards, Writing characters, Practice apps, Pinyin apps. Most of these apps are one skill based (dictionary, flash card, pinyin, writing hanzi). It means if foreigners choose self-study for learning Chinese using mobile apps, at least three or five apps are needed to be downloaded (some of them are free, some are paid). Another problem is that contents of those apps are not good and not systematic enough. Therefore, foreign students use practice type apps. Those are most comfortable apps for self-study.

The apps on both the Android and IOS platform are the dictionary, pronunciation, write Chinese characters, flash card apps etc… Among them, linear structure mobile app are too many. As well as branch structure, another is the structure repeating self-learning mobile apps.

Linear Structure Mobile apps are one of the supporting tools for face-to-face learning. So design and contents of those apps are simple. There are not many weakness in those apps.

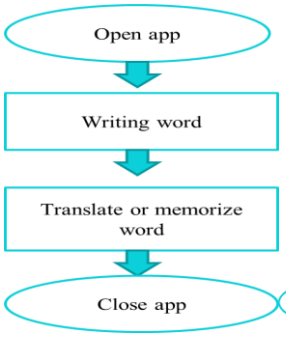

Figure 1. Line Structure

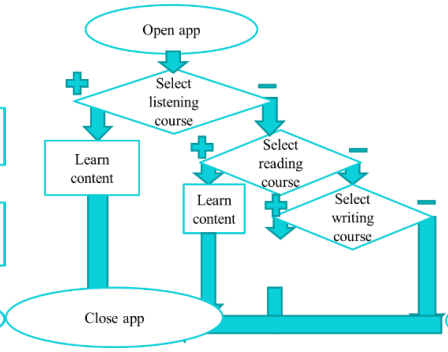

Figure 2. Branched Structure

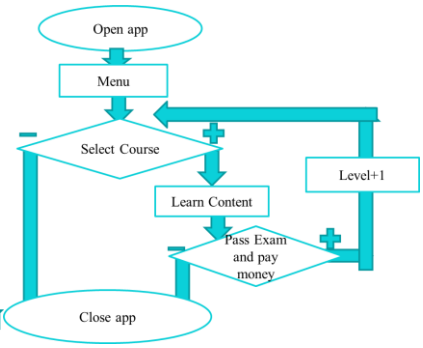

Figure 3. Repeated Structure

Branched mobile apps are rare. Those test mobile apps are created for foreigners for preparing for the HSK(Chinese Proficiency Test) exam.

Repeat structure is self-learning foreign language mobile apps. This kind of mobile apps are most popular and usually paid, as well as independent. Language learning mobile app should have a complex design and content. But current 40 mobile apps' analysis result shows that most of them are impossible to input information (speaking, writing Chinese characters). So it means self-learners using these apps are only possible to learn to recognize Chinese characters and know what they mean. But learners can't write Chinese characters and can't correctly pronounce them. Another problem is that there are design related problems in those apps. Because of design problem, results are low.

The results of other researchers' study in this field are following: Most of the paid apps focus on direct translation of words and phrases (Patrik Allan, 2017). Our review has shown that, in the commercial apps field, there is a predominant focus on teaching language as separate words rather than contextualized usage.

Most of them use drill-like mechanisms and offer very little explanatory corrective feedback, and there is little adaptation to the needs of individual learners. Despite the advances in language teaching that stress the importance of communicative competence in language learning, MALL technology is still primarily utilized for vocabulary instruction rather than fluency-building (Catherine R. H, …, 2016).

3. DISCUSSION

Now learn foreign language mobile app problems before we introduced. Most problems are content-related, especially related to the relevance between content and design. The reason I'm doing this double-repeat model is to fix the design and content of mobile apps that are now in use. There are also several language learning mobile apps that their design is advanced to a new level.

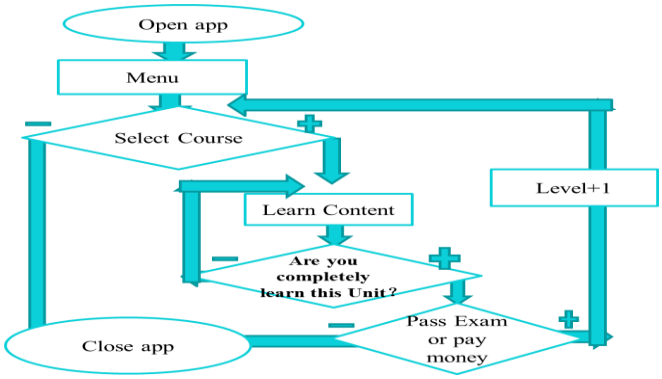

Figure 4. Double Repeated Model

This model is featured by two checkers. One is "Are you ready for the final exam?" Yes, "Take the exam". But how do you know that students are ready for the final exam? (Do you complete this unit?) We can calculate it as following. If students open their mobile app every X1 day and take lesson in listening, speaking, reading and writing, they should learn or master Y1% of contents. Then this means the learner is ready to take exam. Even if students open their mobile apps, but time interval between lessons is too long, this means that learner is impossible to take exam. If students do not participate in class, then those students can't participate in the final exam and are impossible to go up to the next level.

But for now there is no such limitation in currently used mobile apps. When we closely look into the current usage cases of language learning apps, most of the users first download mobile app and learn a few days, and then forget that mobile app. Or open a mobile app to learn one and forget for some time. And then open it and learn after very long time. At that time, they have already forgotten what they learned last time. And their knowledge and skills are less than others and learning process is slower than others.

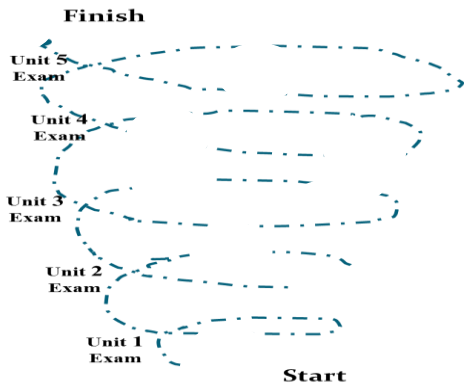

Figure 5. Now self-learn app used repeated structure (break off)

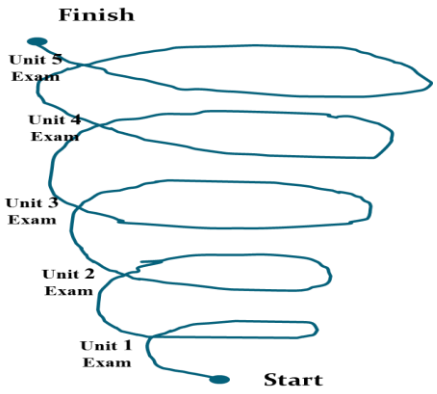

Figure 6. Double repeated model (continuously)

FIGURE 5 LINE: OPEN APP LEARN TIME OR DAYS.
FIGURE 5 SPACE: APP'S CLOSED TIME. LEARNERS' NOT USED DAYS.
FIGURE 6 IF STUDENT'S APP NOT USED DAYS IS MANY, SENT ALERT。
FIGURE 6 IF STUDENTS DON'T LEARN X_2 DAYS, IMPOSSIBLE TAKE EXAM. AFTER EVERY Y_2 DAYS OF CONTINUOUS LEARNING, THEY WILL BE POSSIBLE TO TAKE THE EXAM AND POSSIBLE TO GO UP TO THE NEXT LEVEL.
X1=UNIT.CONTENT / LEARNER.USE.MOBILE.A.DAY.POSSIBLE.LEARN.ABILITY
Y1=UNIT.CONTENT / X1
X2=NOT LEARN DAYS NUMBER
Y2=$\sqrt{X_2}$ LEARNER PRECAUTIONS DAYS

4. CONCLUSIONS

Nowadays there are too many foreign language learning self-study mobile apps. However, most of those apps are paid and used repeated model. This model has its own weakness. It can't control or examine the time interval (not only time interval but also some users' skill) of learning of users. So for that kind of control for improving quality of learning, double repeated model can be used.

As for learning foreign languages, learner the more repeat, the better the result is. All the teachers give one advice to the foreign language learners is that "learn continuously is most useful method".

If we want emerging language learning apps, first, of course, we should focus on this app's content. Content possibly include language learning four skills (speaking, reading, listening and writing), and is based on activities and knowledge (grammar, culture, vocabulary, pronunciation). Another is that they must provide students with feedback. Second important thing that must be considered is the app's design. Double repeated model should be used in designing.

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